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(54) **SYSTEM AND METHOD FOR A HANDHELD MULTI-USE CURVED WINDSHIELD SQUEEGEE**

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**A47L 13/11** (2006.01)  
**B25G 1/08** (2006.01)

(52) **U.S. Cl.**  
CPC ..... **B60S 3/045** (2013.01); **A47L 13/11** (2013.01); **B25G 1/08** (2013.01)

(58) **Field of Classification Search**  
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USPC ..... 15/245  
See application file for complete search history.

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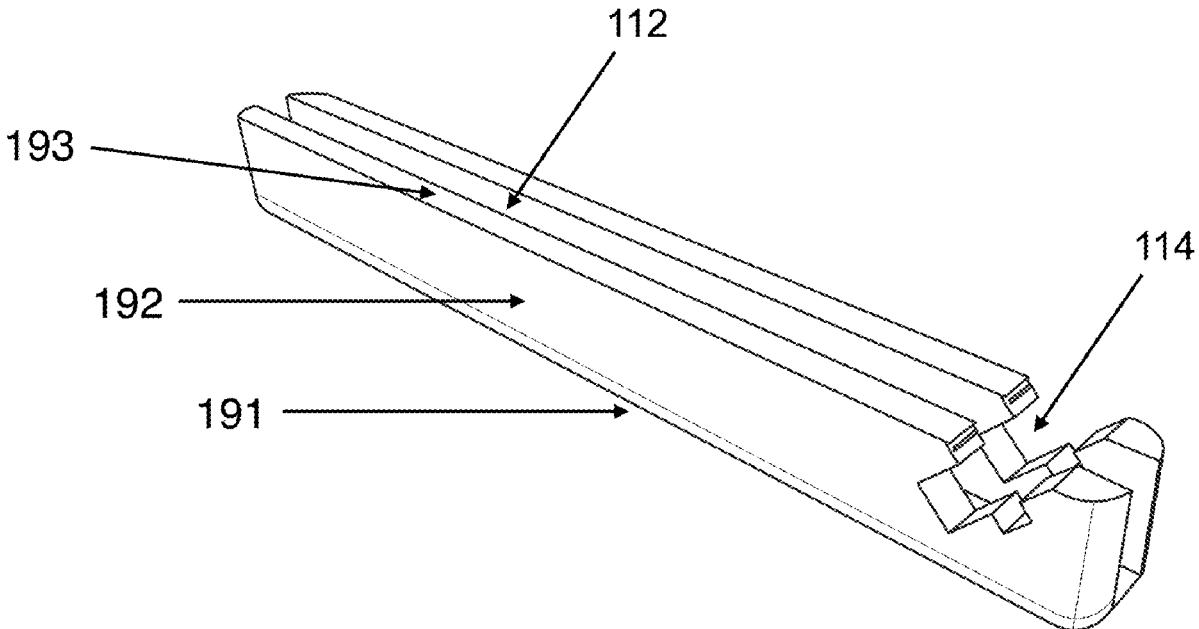
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(57) **ABSTRACT**

A system and method for curved squeegee apparatus that is usable in a variety of different configurations whereby the apparatus has a squeegee blade, a handle that acts as a cover to the squeegee blade and allows for the squeegee blade to reach extended locations in a parallel orientation with the handle and clean specific areas in a perpendicular position with respect to the handle, and a squeegee channel which has a curved shape causing the blade to have a convex or concave shape when inserted into the squeegee channel allowing the curved squeegee apparatus to accommodate for different surface areas.

**13 Claims, 7 Drawing Sheets**



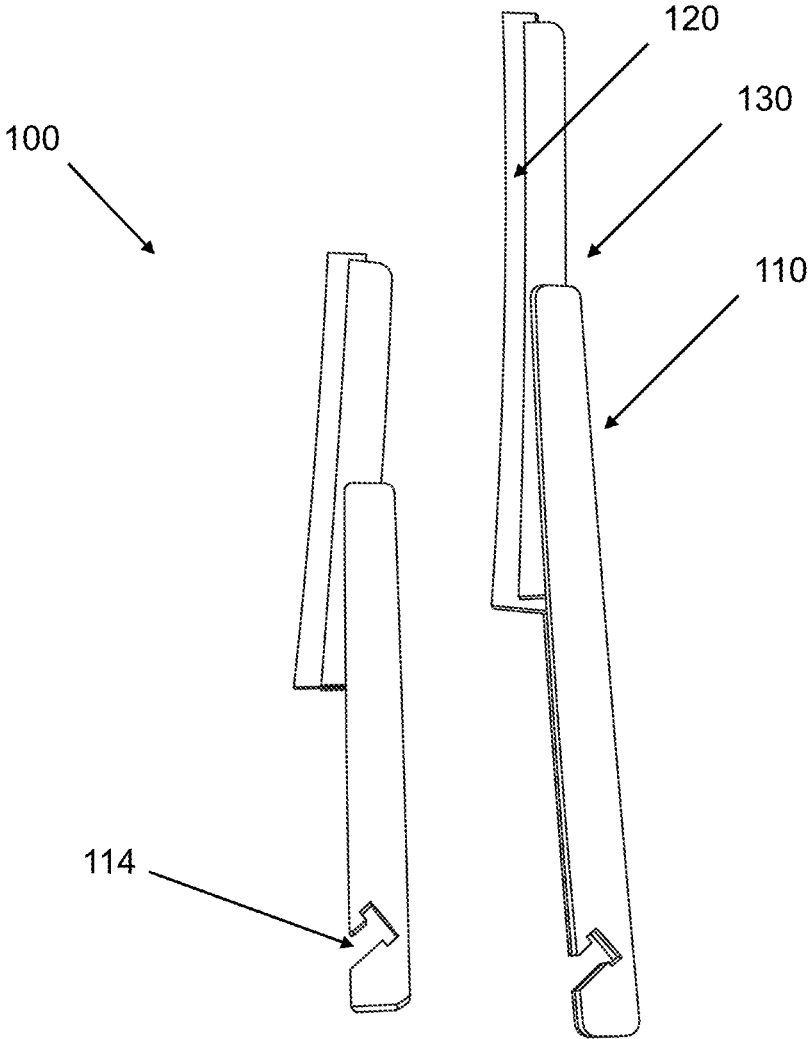


FIG. 1

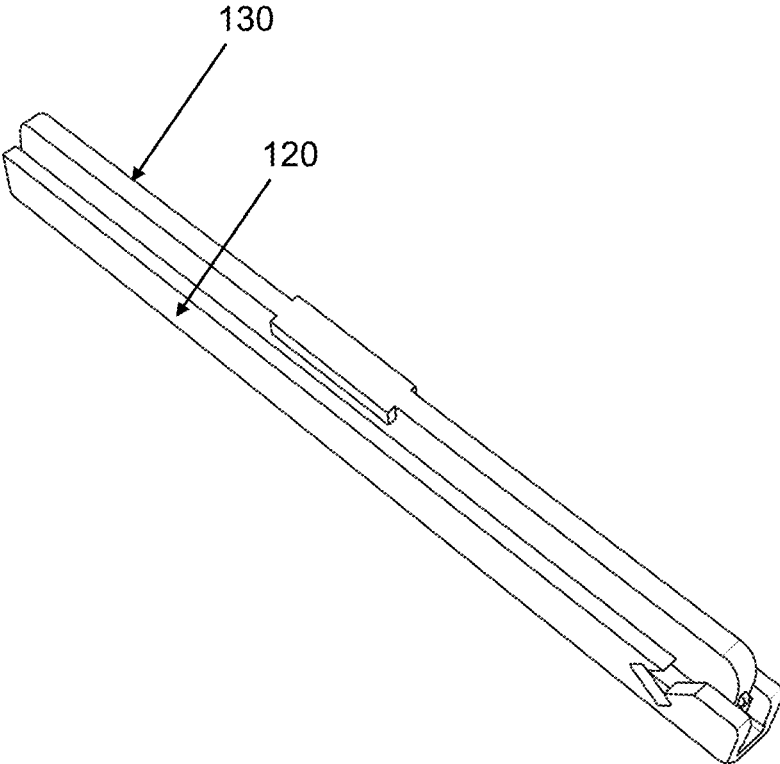


FIG. 2

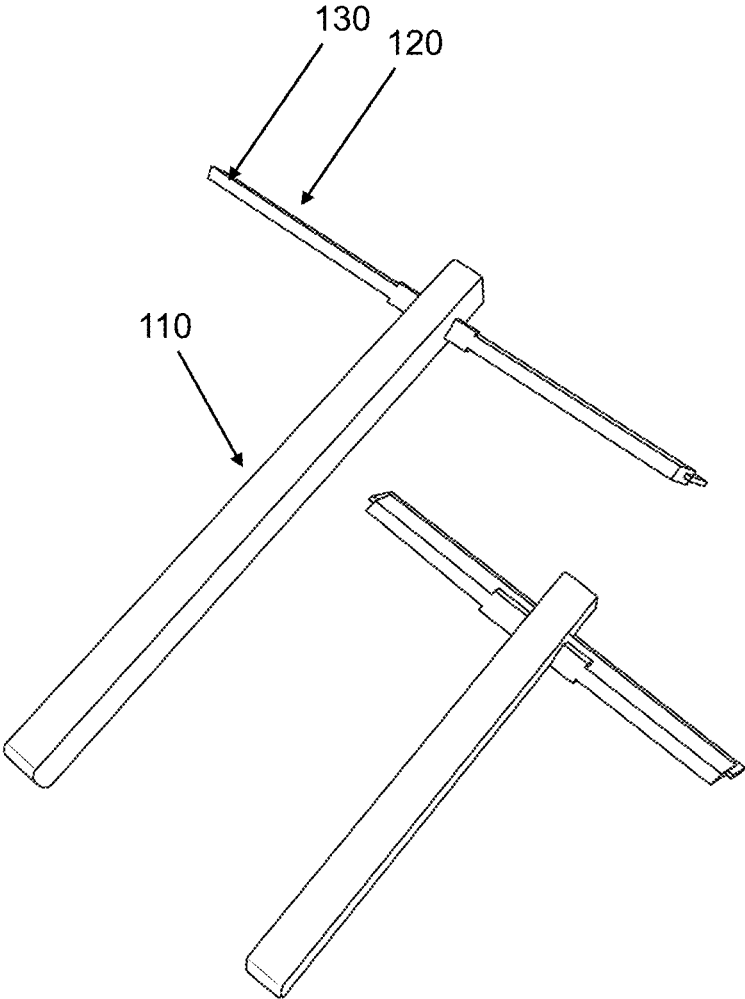


FIG. 3

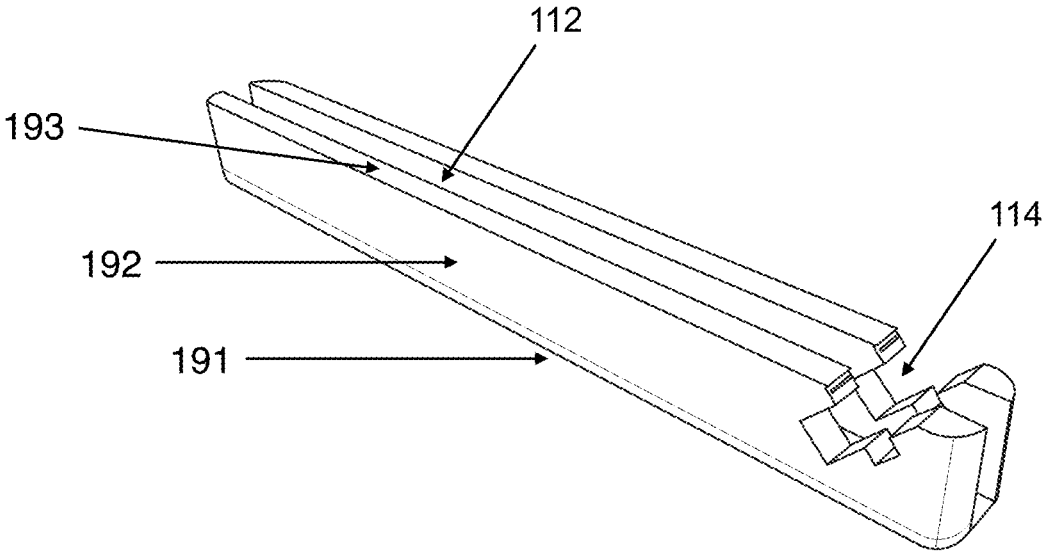


FIG. 4

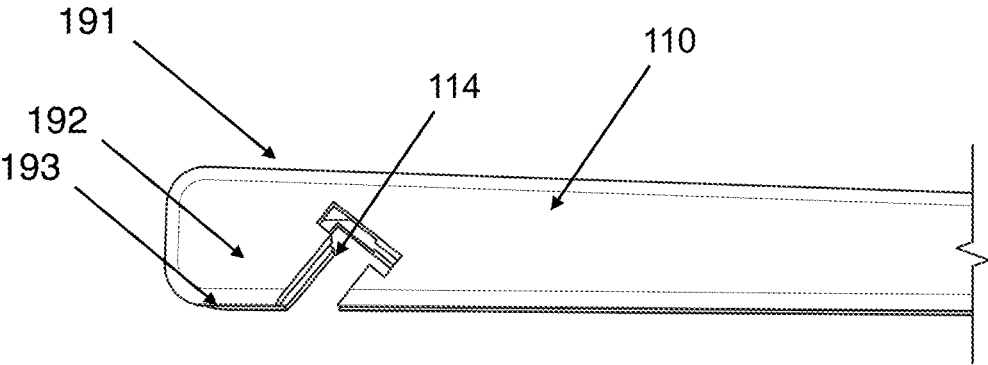


FIG. 5

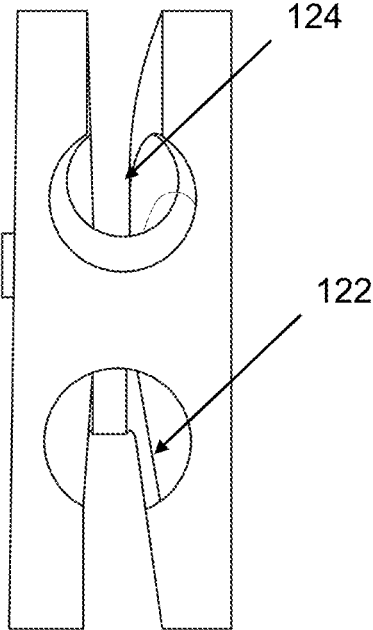


FIG. 6

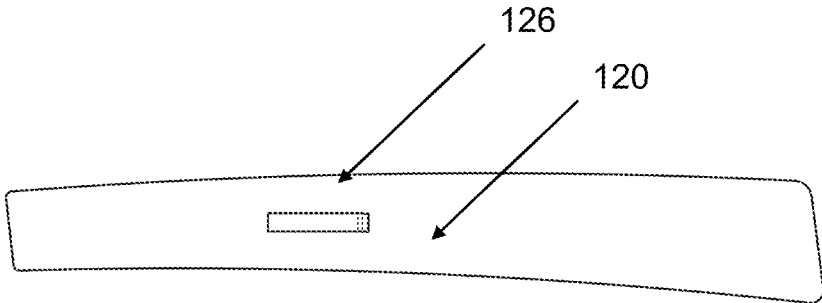


FIG. 7

1

## SYSTEM AND METHOD FOR A HANDHELD MULTI-USE CURVED WINDSHIELD SQUEEGEE

### FIELD OF DISCLOSURE

The overall invention relates generally to squeegees and more particularly a squeegee designed for a wide range of curvatures of surfaces whereby the handle doubles as a blade cover.

### BACKGROUND

A squeegee is a handheld cleaning tool used for cleaning and drying flat surfaces, to remove liquid, dirt, or debris from a surface, leaving it clean and streak-free. Squeegees are primarily designed for use on smooth, flat surfaces like glass but may not be as effective on textured or irregular surfaces. The rubber or silicone blade on a squeegee can also wear out over time, losing its effectiveness and potentially leaving behind streaks or not removing water and debris effectively. Squeegees also have limited reach making it difficult to clean large or high windows without the use of additional equipment like extension poles. Storing squeegees can be challenging due to their shape and size. Because of these setbacks a need for an improved curved squeegee system.

### SUMMARY

The present invention is directed to a handheld multi-use curved windshield squeegee that removes all the water as it is slightly curved and the rubber is allowed to be flexible and form to the windshield. It is allowed to be flexible because the sides of the channel (slot that the rubber blade slides into) has shorter walls, therefore providing less support, which advantageously allows the rubber blade to move more freely. The handheld multi-use curved windshield squeegee may have a rubber blade inserted into a squeegee channel with a sheath or cover that slides over the rubber blade for protection and doubles as a handle by connecting a T-shaped notch cut out on one end of the sheath to a corresponding shape on the top-center edge of the side opposite of the open squeegee channel and rubber blade. The cut-out may be at a 35-degree angle or any suitable acute angle for the handle to lock in place for ergonomic use.

The squeegee channel may have a shallow positioning (to maximize protrusion of the rubber blade for greater conformity to shapes), a curve/radius, and a central area that is 3 mm higher than its ends to provide curvature. The groove in the channel has a specific arc/curve to allow the channel to make contact throughout the rubber blade and to conform to curved and flat surfaces. The channel curvature also constricts the rubber blade from sliding during use or storage but allows for removal and replacement. The positioning of the groove in the channel is the key to prevent the rubber blade from becoming too stiff or flexible while in use.

### BRIEF DESCRIPTION OF DRAWINGS

The present invention will be described by way of exemplary embodiments, but not limitations, illustrated in the accompanying drawings in which like references denote similar elements, and in which:

FIG. 1 shows an illustration of a first embodiment of the curved squeegee handheld apparatus in a first orientation and in an extended parallel orientation.

2

FIG. 2 shows an illustration of a first embodiment of the curved squeegee handheld apparatus in a stored orientation.

FIG. 3 shows an illustration of a first embodiment of the curved squeegee handheld apparatus in a perpendicular orientation.

FIG. 4 shows an illustration of the handle of curved squeegee handheld apparatus.

FIG. 5 shows another illustration of the handle of curved squeegee handheld apparatus.

FIG. 6 shows an illustration of the squeegee channel of curved squeegee handheld apparatus.

FIG. 7 shows another illustration of the squeegee channel of curved squeegee handheld apparatus.

### DETAILED DESCRIPTION

In the Summary above and in this Detailed Description, and the claims below, and in the accompanying drawings, reference is made to particular features of the invention. It is to be understood that the disclosure of the invention in this specification includes all possible combinations of such particular features. For example, where a particular feature is disclosed in the context of a particular aspect or embodiment of the invention, or a particular claim, that feature can also be used, to the extent possible, in combination with and/or in the context of other particular aspects and embodiments of the invention, and in the invention generally.

Where reference is made herein to a method comprising two or more defined steps, the defined steps can be carried out in any order or simultaneously (except where the context excludes that possibility), and the method can include one or more other steps which are carried out before any of the defined steps, between two of the defined steps, or after all the defined steps (except where the context excludes that possibility).

In the following detailed description, numerous specific details are set forth in order to provide a more thorough understanding of the one or more embodiments described herein. However, it will be apparent to one of ordinary skills in the art that the invention may be practiced without these specific details. In other instances, well-known features have not been described in detail to avoid unnecessarily complicating the description.

The present invention is directed to a system and method for a curved squeegee handheld apparatus **100** that is usable in a variety of different configurations. Curved squeegee handheld apparatus **100** may also have a squeegee channel which has a curved shape causing the squeegee blade to have a convex or concave shape when inserted into the squeegee channel allowing the curved squeegee apparatus to accommodate for different surface areas. Curved squeegee handheld apparatus **100** may have a handle that acts a cover for the squeegee blade when inserted into the squeegee channel and allows for the squeegee blade to reach extended locations in a parallel orientation with the handle and clean other types of areas in a perpendicular position with respect to the handle using a customized notch cut at the end of the handle.

One embodiment of a curved squeegee handheld apparatus **100** in accordance with the present invention is illustrated in FIG. 1. Curved squeegee handheld apparatus **100** may include three components such as handle **110**, squeegee blade **120**, and squeegee channel **130**.

Squeegee blade **120** may be made of rubber or silicone, and it is the part of curved squeegee handheld apparatus **100** that comes into contact with the surface being cleaned. Squeegee blade **120** may be designed to conform to the shape of the surface and efficiently remove liquid or dirt as

it is pulled across the surface. Squeegee blade **120** is designed to be replaceable, so when it becomes too worn out, a new one may be purchased.

Squeegee channel **130**, as illustrated in FIGS. **6** and **7** may act as a squeegee holder and be elongated in shape with straight or rounded edges whereby it curves over its length such that the middle is 3 mm higher than its ends to provide said curvature. Squeegee channel **130** may be made of a high strength chemical resistant plastic or any suitable material that does not stray away from the intent of the present invention. This part is slightly curved so that when squeegee blade **120** is inserted, squeegee blade **120** is now curved with it, having taken the shape of the curve.

Squeegee channel **130** may have a slot **122** extending inward from a bottom surface of squeegee channel **130** and a slot **124** extending inward from a top surface of squeegee channel **130** whereby slots **122** and **124** are similarly shaped and mirroring one another, as illustrated in FIG. **6**. Slots **122** and **124** may have a rectangular portion closest to the top and bottom surfaces of squeegee channel **130** whereby the rectangular portion extends inward to a circular portion that is closer to the middle of squeegee channel **130**.

The positioning of slots **122** and **124** allow for a squeegee blade **120** that is inserted into squeegee channel **130** to be oriented as a convex outer surface or concave inner surface. The arc of squeegee channel **130** also constricts squeegee blade **120** from sliding in or out of slot **122** or **124**. A user may pull squeegee blade **120** through slot **122** or **124** to remove and replace squeegee blade **120**, but squeegee blade **120** will not slide out during use or storage. Squeegee channel **130** may have one or more protrusions **126** on both sides of squeegee channel **130** that extend outward perpendicularly at or near a middle of squeegee channel **130**, as illustrated in FIG. **7**.

Handle **110**, as illustrated in FIG. **4** may provide a grip for the user and allows them to apply pressure and control the movement of squeegee blade **120** and doubling as a squeegee sheath or cover when squeegee channel **130** with inserted squeegee blade **120** are positioned inside a sliding channel of handle **110**. Handle **110** may be attached perpendicular to squeegee channel **130**, as illustrated in FIG. **3** with the difference being that a user may also remove squeegee channel **130** and attach squeegee channel **130** in a parallel configuration inside handle **110** for extended reach of the squeegee blade, as illustrated in FIG. **1**. The handle also slides over the squeegee blade and protects the rubber while not in use, as illustrated in FIG. **2**.

Handle **110** may be made of a high strength chemical resistant plastic or any other suitable material that does not stray away from the intent of the present invention. Handle **110** may come in various shapes and sizes to accommodate different preferences and applications. Handle **110** may be elongated in shape with rounded edges. Handle **110** may have a base surface **191** whereby each of the side edges of base surface **191** extend upward into two sidewalls **192**. Each of the two groups of two sidewalls **192** have a top surface **193** forming an open cavity acting as a sliding channel **112** to receive squeegee channel **130** and protect squeegee blade **120**. Handle **110** may also have one or more grooves or designs to hold squeegee channel **130** at specific locations for a designated needed height.

Sliding channel **112** may be in the form of a U-shape or T-shape, as illustrated in FIG. **4**. Sliding channel **112** may have two ends, and at least one of the ends is an open end. Preferably, the two ends of the sliding channel **112** are open ends. Handle **110** may have a "T" shaped notch cut out on one end of handle **110** that extends diagonally outward from

sliding channel **112** towards the end, as illustrated in FIGS. **4** and **5**. Notch cut **114** (a second sliding channel) may extend inward from top surfaces **193** of handle **110** along side surfaces **192** and intersects with sliding channel **112** at an angle. In one or more embodiments, the angle of notch cut **114** may be at a 35 degree angle, however, this is non-limiting and may be any suitable angle depending on the circumstances needed for curved squeegee handheld apparatus **100**. The protrusions of squeegee channel **130** permit squeegee channel **130** to match the shape of notch cut **114** of handle **110**, as illustrated in FIG. **3**. This fit is slightly snug and allows handle **110** to be used as a handle with squeegee blade **120** now in perpendicular position.

The corresponding structures, materials, acts, and equivalents of all means or step plus function elements in the claims below are intended to include any structure, material, or act for performing the function in combination with other claimed elements as specifically claimed. The description of the present invention has been presented for purposes of illustration and description but is not intended to be exhaustive or limited to the invention in the form disclosed. Many modifications and variations will be apparent to those of ordinary skill in the art without departing from the scope and spirit of the invention.

The embodiments were chosen and described in order to best explain the principles of the invention and the practical application, and to enable others of ordinary skill in the art to understand the invention for various embodiments with various modifications as are suited to the particular use contemplated. The present invention according to one or more embodiments described in the present description may be practiced with modification and alteration within the spirit and scope of the appended claims. Thus, the description is to be regarded as illustrative instead of restrictive of the present invention.

What is claimed is:

1. A handheld squeegee apparatus having a handle, a squeegee holder removable from the handle, and a squeegee blade positioned inside the squeegee holder, wherein the squeegee holder is elongated and curved with an exterior concave curve that is three millimeters deeper from ends of the squeegee holder to provide curvature, wherein the handle has a first channel between side surfaces of the handle, wherein the first channel has two open ends for receiving the squeegee holder wherein a width of the squeegee holder is positioned completely between inner walls of the first channel, wherein the handle has a notch that extends inward from a top surface of the handle through a length of the side surfaces of the handle and intersects with the first channel at an angle.

2. The handheld squeegee apparatus of claim 1, wherein the squeegee holder has two slots extending through the squeegee holder on opposite sides of the squeegee holder.

3. The handheld squeegee apparatus of claim 1 wherein an entire length of the squeegee holder in a stored configuration extends out from the handle.

4. The handheld squeegee apparatus of claim 1, wherein the squeegee blade has two protrusions extending outward perpendicularly from the squeegee blade in opposite directions from each other.

5. The handheld squeegee apparatus of claim 1, wherein the notch has a t shape.

6. The handheld squeegee apparatus of claim 5, wherein the notch is at a 35 degree angle with respect to the first channel.

7. A handheld squeegee apparatus having a handle, a squeegee holder, and a squeegee blade, wherein the hand-

5

held squeegee apparatus is positionable in three configurations, wherein in a first configuration the squeegee blade is positioned in and extending outward from the squeegee holder wherein the squeegee holder is positioned within a channel between two side surfaces on the handle such that the squeegee holder is parallel to and extending above the handle, wherein in a second configuration the squeegee blade is positioned in and extending outward from the squeegee holder wherein the squeegee holder is positioned in a separate receptacle on the handle from the channel, wherein the separate receptacle extends inward from a top surface of the handle partially through the two side surfaces of the handle and intersects with the channel at an angle, such that the squeegee holder is perpendicular to and extending outward from the handle, wherein in a third configuration the squeegee blade is positioned in and extending outward from the squeegee holder wherein the squeegee holder is positioned in the channel in an inverted position from the first configuration such that the squeegee blade is facing the handle wherein the handle covers the squeegee blade as a sheath in the third configuration, protecting the squeegee blade while not in use.

8. The handheld squeegee apparatus of claim 7, wherein the squeegee holder is elongated and curved causing the squeegee blade to form an outer convex surface or outer concave surface.

9. The handheld squeegee apparatus of claim 8, wherein the squeegee holder has two slots extending through the squeegee holder on opposite sides of the squeegee holder

6

wherein when the squeegee blade is positionable in a first slot of the two slots it forms the outer concave surface, wherein when the squeegee blade is positionable in a second slot of the two slots it forms the outer convex surface.

10. The handheld squeegee apparatus of claim 9, wherein the two slots each have an outer rectangular portion and an inner circular portion.

11. A handheld squeegee apparatus having a handle, a squeegee holder removable from the handle, wherein the handle has two separate areas of attachment to receive the squeegee holder, and a squeegee blade positioned inside the squeegee holder, wherein a first area of attachment of the two separate areas of attachment is a first channel positioned between two side surfaces of the handle, wherein a second area of attachment of the two separate areas of attachment is a second channel that extends inward from a top surface of the handle along the side surfaces of the handle and intersects with the first channel at an angle, wherein the squeegee holder is elongated and curved, wherein the squeegee holder is in a slidable configuration with the handle, wherein the first channel receives the squeegee holder wherein the squeegee holder is positioned inside of the first channel and the squeegee holder is positioned outside of the first channel.

12. The handheld squeegee apparatus of claim 11, wherein the angle is 35 degrees.

13. The handheld squeegee apparatus of claim 11, wherein the first channel has two open ends on opposite side from one another.

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